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EXAMINER	
DAVIS, CYNTHIA L	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/892,492	GRAVES ET AL.
	Examiner	Art Unit
	Cynthia L Davis	2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/11/2005 have been fully considered but they are not persuasive. Regarding the rejection of claims 29, 33, and 34, that the filtering is done in the optical domain, or by an optical filter, is not present in the claim language. Hall does disclose filtering signals in an optical system.

2. Applicant's arguments with respect to claims 1-28, 30-32, and 35-36 have been considered but are moot in view of the new ground(s) of rejection, which were necessitated by applicant's amendment.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 2 recites the limitation "a plurality of optical signal generators as claimed in claim 1" in page 2, line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims rejected under 35 U.S.C. 103(a) as being unpatentable over Hall in view of Seto.

Regarding claim 29, filtering the generated carrier signal to provide a first filtered optical signal and a second filtered optical signal, each said filtered optical signal including the portion of the generated carrier signal contained in a pass band surrounding a respective channel center frequency is disclosed in Hall, column 5, lines 58-60 and column 9, lines 39-40 (there are two signal portions, both are eventually filtered). Determining an indication of a characteristic of the target carrier frequency in said first and second filtered optical signals is disclosed in column 5, lines 66-67 (the intensity and frequency of the beam is known). Adjusting the optical carrier frequency of the generated carrier signal as a function of the difference in the indication of said characteristic of the target carrier frequency in the first and second filtered optical signals is disclosed in column 5, line 67-column 6, line 2. The filters surrounding different frequencies is missing from Hall. However, Seto discloses this in figure 10, element 38 and 40, and paragraph 116 It would have been obvious to one skilled in the art at the time of the invention to use the filter structure of Seto in the system of Hall. The motivation would be to generate a signal with excellent noise characteristics (Seto, paragraph 30).

Regarding claim 30, the first filtered optical signal including the portion of the generated carrier signal contained in a pass band surrounding a channel center frequency that is less than the optical carrier frequency of the generated carrier signal, said second filtered optical signal including the portion of the generated carrier signal contained in a pass band surrounding a channel center frequency that is greater than the optical carrier frequency of the generated carrier signal is missing from Hall.

However, Seto discloses filters centered around different frequencies, one higher and one lower, in figure 10, element 38 and 40, and paragraph 116 It would have been obvious to one skilled in the art at the time of the invention to use the filter structure of Seto in the system of Hall. The motivation would be to generate a signal with excellent noise characteristics (Seto, paragraph 30).

Regarding claim 33, means for filtering the generated carrier signal to provide a first filtered optical signal and a second filtered optical signal, each said filtered optical signal including the portion of the generated carrier signal contained in a pass band surrounding a respective channel center frequency is disclosed in Hall, column 5, lines 58-60 and column 9, lines 39-40 (there are two signal portions, both are eventually filtered). Means for determining an indication of a characteristic of the target carrier frequency in said first and second filtered optical signals is disclosed in column 5, lines 66-67 (the intensity and frequency of the beam is known). Means for adjusting the optical carrier frequency of the generated carrier signal as a function of the difference in the indication of said characteristic of the target carrier frequency in the first and second filtered optical signals is disclosed in column 5, line 67-column 6, line 2. The filters surrounding different frequencies is missing from Hall. However, Seto discloses this in figure 10, element 38 and 40, and paragraph 116 It would have been obvious to one skilled in the art at the time of the invention to use the filter structure of Seto in the system of Hall. The motivation would be to generate a signal with excellent noise characteristics (Seto, paragraph 30).

Regarding claim 34, means for combining said generated carrier signal with at least one other generated carrier signal at a different optical carrier frequency is disclosed in Hall, column 5, lines 62-67.

5. Claim 35 is rejected under 35 U.S.C. 102(e) as being anticipated by Seto in view of Hall.

Regarding claim 35, a detection module adapted to receive a first filtered optical signal and a second filtered optical signal, each said filtered optical signal including the portion of the generated carrier signal contained in a pass band surrounding a different respective channel center frequency, said detection module further adapted to determine an indication of a characteristic of the target carrier frequency in said first and second filtered optical signals is disclosed in Seto in figure 10, elements 38 and 40, and paragraph 116. A control module for adjusting the optical carrier frequency of the generated carrier signal as a function of the difference in the indication of a characteristic of the target carrier frequency in the first and second filtered optical signals is missing from Iida. This is disclosed in Hall, column 5, line 67-column 6, line 2. It would have been obvious to one skilled in the art at the time of the invention to adjust the frequency of the signal as is done in Hall in the system of Iida. The motivation would be to stabilize the frequency (Hall, column 4, lines 47-50).

1. Claims 1and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida in view of Fuse, Hall, and Seto.

Regarding claim 1, a detection unit for determining an indication of a characteristic of the target carrier frequency in said first and second filtered optical

signals is disclosed in Iida, column 2, lines 51-58. A control unit for adjusting the optical carrier frequency of the generated carrier signal as a function of the difference in the indication of said characteristic of the target carrier frequency in the first and second filtered optical signals is missing from Iida. However, this is disclosed in Hall, column 5, line 67-column 6, line 2. It would have been obvious to one skilled in the art at the time of the invention to adjust the frequency of the signal as is done in Hall in the system of Iida. The motivation would be to stabilize the frequency (Hall, column 4, lines 47-50). A multi-channel optical filter for filtering the generated carrier signal, each said filtered optical signal including the portion of the generated carrier signal contained in a pass band surrounding a respective channel center frequency is missing from Iida. However, Fuse discloses in column 4, lines 40-45, a plurality of optical filters for extracting various optical carrier components. It would have been obvious to one skilled in the art at the time of the invention to include a filter in the invention of Iida to filter out various carrier frequencies. The motivation would be to achieve a larger, higher speed optical communication apparatus (Fuse, column 4, lines 31-33). Claim 1 further specifies that the filters are centered at different frequencies, which is missing from Iida and Fuse. However, Seto discloses this in figure 10, element 38 and 40, and paragraph 116 It would have been obvious to one skilled in the art at the time of the invention to use the filter structure of Seto in the system of Iida and Fuse. The motivation would be to generate a signal with excellent noise characteristics (Seto, paragraph 30).

Regarding claim 2, a switch for controlling whether the generated carrier signal exits said optical signal generator is disclosed in Iida, column 8, line 23, and figure 5,

element 11. The control units being interconnected and each being adapted to control the respective switch in order to ensure that the generated carrier signal is allowed to exit at most one of said optical signal generators is disclosed in Iida, column 8, lines 23-26 (the switch operates based on the signal at the control unit). A combiner for combining the carrier signals exiting the plurality of optical signal generators is disclosed in Iida, column 8, line 26, and figure 5, element 42.

2. Claims 3-10, 12-17, 21-23, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida in view of Fuse and Seto.

Regarding claim 3, an optical source adapted to generate an optical signal including at least one carrier signal at a respective generated carrier frequency that is adjustable by a corresponding frequency control signal, each carrier signal being associated with a respective target carrier frequency is disclosed in Iida, column 2, lines 59-61. For at least one target carrier frequency, a first and second detection unit each associated with said target carrier frequency and connected to different ones of the filter output ports, each detection unit associated with a particular target carrier frequency being adapted to output an indication of a characteristic of the particular target carrier frequency in the optical signal present at the filter output port to which said detection unit is connected is disclosed in Iida, column 2, lines 51-58. A control unit connected to the detection units and to the optical source, the control unit being operable to generate the frequency control signal corresponding to a particular carrier signal as a function of the output of the detection units associated with the target carrier frequency associated with the particular carrier signal, thereby to align the generated carrier frequency of the

particular carrier signal with the target carrier frequency associated with the particular carrier signal is disclosed in Iida, column 2, lines 63-65. A multi-channel optical filter having a filter input port connected to the optical source and having a plurality of filter output ports, each filter output port being associated with a respective optical channel having a pass band surrounding a respective channel center frequency is missing from Iida. However, Fuse discloses in column 4, lines 40-45, a plurality of optical filters for extracting various optical carrier components. It would have been obvious to one skilled in the art at the time of the invention to include a filter in the invention of Iida to filter out various carrier frequencies. The motivation would be to achieve a larger, higher speed optical communication apparatus (Fuse, column 4, lines 31-33). Claim 3 further specifies that the filters are centered at different frequencies, which is missing from Iida and Fuse. However, Seto discloses this in figure 10, element 38 and 40, and paragraph 116 It would have been obvious to one skilled in the art at the time of the invention to use the filter structure of Seto in the system of Iida and Fuse. The motivation would be to generate a signal with excellent noise characteristics (Seto, paragraph 30).

Regarding claim 4, the first detection unit associated with a particular target carrier frequency being connected to a filter output port associated with an optical channel having a channel center frequency less than the particular target carrier frequency and wherein the second detection unit associated with the particular target carrier frequency is connected to a filter output port associated with an optical channel having a channel center frequency greater than the particular target carrier frequency is missing from Iida. Fuse discloses in column 4, lines 40-50, a plurality of filter outputs,

some above and some below the center target frequency. It would have been obvious to separate the signal based on frequency. The motivation would be to be able to achieve a larger, higher speed optical communications apparatus (Fuse, column 4, lines 31-33).

Regarding claim 5, the optical source being adapted to modulate at least one carrier signal in accordance with a modulation signal having a characteristic uniquely associated with the target carrier frequency associated with the carrier signal is disclosed in Iida, column 3, lines 3-4. Each detection unit associated with a particular target carrier frequency is adapted to output an indication of the extent to which said characteristic of the modulation signal associated with the particular target carrier frequency appears in the optical signal present at the filter output port to which said detection unit is connected is disclosed in Iida, column 3, lines 20-22.

Regarding claim 6, the optical source being adapted to modulate at least one carrier signal in accordance with a modulation signal uniquely associated with the target carrier frequency associated with the carrier signal is disclosed in Iida, column 3, lines 3-4. Each detection unit associated with a particular target carrier frequency is adapted to output the amplitude of the modulation signal associated with the particular target carrier frequency appearing in the optical signal present at the filter output port to which said detection unit is connected is disclosed in Iida, column 2, lines 51-3.

Regarding claim 7, each modulation signal associated with a different target carrier frequency has a set of at least one unique electrical frequency is disclosed in Iida, column 3, lines 25-26.

Regarding claim 8, the control unit comprising a comparator connected to the first and second detection units associated with the same target carrier frequency is disclosed in Iida, column 3, line 30.

Regarding claim 9, the comparator being adapted to determine the difference in the amplitude of the modulation signal associated with said same target carrier frequency as measured in different optical channels is disclosed in Iida, column 3, line 30 (the comparator determines peak amplitude levels). The control unit being further adapted to compare said difference to a pre-determined offset, thereby to generate the frequency control signal corresponding to the carrier signal associated with said same target carrier frequency is disclosed in Iida, column 3, lines 13-17 (the predetermined threshold acts as an offset).

Regarding claim 10, the predetermined offset depending on the response of the optical filter in the pass bands of the optical channels associated with the two different filter output ports to which said first and second detection units are connected is disclosed in Iida, column 3, lines 13-17 (the response of the optical filters would inherently affect the functioning of the control unit).

Regarding claim 12, the channel center frequencies and the target carrier frequency being interleaved is disclosed in Iida, column 2, line 66-column 3, line 2.

Regarding claim 13, the channel center frequencies being aligned with the target carrier frequencies is disclosed in Iida, column 2, line 66-column 3, line 2 (when combining the signals they would be aligned).

Regarding claim 14, the at least two channel center frequencies being located between each pair of adjacent target carrier frequencies is disclosed in Iida, column 2, lines 52-53 (disclosing a plurality of signals and subcarriers, which might have two center frequencies between carrier frequencies).

Regarding claim 15, a coarse wavelength capture module connected between at least one filter output port and the optical source, said coarse wavelength capture module being adapted to determine whether at least one generated carrier frequency is substantially outside a neighborhood of the associated target carrier frequency and further adapted to instruct the optical source to adjust such generated carrier frequency until it is determined to be within said neighborhood of the associated target frequency is disclosed in Iida, column 2, lines 59-61 (the frequency signal source outputs a signal within the neighborhood of a desired frequency).

Regarding claim 16, an output switch connected to the optical source, for controllably passing selected ones of the carrier signals generated by the source to a location external to the optical signal generator, said output switch being controllable by said course wavelength capture module to block at least one carrier signal when its associated generated carrier frequency is outside said neighborhood of the associated target carrier frequency is disclosed in Iida, column 3, lines 47-49.

Regarding claim 17, a third detection unit associated with a third carrier frequency and connected to the particular filter output port whose associated channel center frequency is closest to said target carrier frequency, wherein the third detection unit associated with a particular target carrier frequency is adapted to output the

amplitude of the modulation signal associated with the particular carrier frequency as it appears in the optical signal present at the filter output port to which said third detection unit is connected is missing from Iida. However, Fuse discloses in column 4, lines 40-45, a plurality of optical filters, and Iida discloses detectors in column 2, lines 51-58. It would have been obvious to one skilled in the art to have a detector for each filter output. The motivation would be to detect characteristics of the various signals. The control unit being further connected to each third detection unit and wherein the control unit is further operable to adjust the amplitude of a particular carrier signal as a function of the output of the third detection unit associated with the target carrier frequency associated with the particular carrier signal is disclosed in Iida, column 2, lines 62-65.

Regarding claim 21, the optical source being adapted to modulate at least one carrier signal in accordance with a modulation signal having a characteristic uniquely associated with the target carrier frequency associated with the carrier signal is disclosed in Iida, column 3, lines 3-4. The detection units including a modulation signal detector adapted to output an indication of the extent of to which said characteristic of the modulation signal associated with the particular target frequency appears in the optical signal present at the filter output port to which said detection unit is connected is disclosed in Iida, column 2, lines 51-3. A power monitor adapted to measure a power level of the optical signal present at the filter output port to which said detection unit is connected is disclosed in column 2, lines 51-54 (amplitude is related to power). The control unit including a comparator associated with the particular target carrier frequency is disclosed in Iida, column 6, line 30. A switch having inputs connected to

the modulation signal detector and the power monitor in both the first and second signal detection units associated with the particular target carrier frequency and having outputs connected to the comparator associated with the particular target carrier frequency, the switch being operable in a first state wherein the output of the modulation signal detectors is provided to the comparator and a second state wherein the output of the power monitors is provided to the comparator is disclosed in Iida, column 3, lines 46-53.

Regarding claim 22, the comparator associated with a particular target carrier frequency being adapted to determine the difference between the signals received from the switch to which it is connected is disclosed in Iida, column 3, line 30 (the comparator determines peak amplitude levels). The control unit being further adapted to compare said difference to a predetermined signal offset, thereby to generate the frequency control signal corresponding to the carrier signal associated with the particular target carrier frequency is disclosed in Iida, column 3, lines 13-17 (the predetermined threshold acts as an offset).

Regarding claim 23, each switch being operable to change states as a function of the stability of the difference determined by the comparator to which said switch is connected is disclosed in Iida, column 3, lines 48-49 (the switch changes states based on the peak amplitude; if the amplitude is unstable, it will change more often).

Regarding claim 26, the optical signal generated by the source including at least two carrier signals wherein the optical source comprises an optical multiplexer for combining the at least one carrier signal into a composite optical signal, said optical

multiplexer having an output port connected to the filter input port is disclosed in Iida, column 2, line 66-column 3, line 2.

Regarding claim 27, at least one receiver connected between a respective one of the filter output ports and at least one of the detection units, each receiver being adapted to provide opto-electronic conversion of an optical signal received from the respective filter output port into an electrical signal provided to the at least one of the detection units is disclosed in Iida, column 4, lines 22-24 (the O/E converter is located in the receiver).

Regarding claim 28, each optical signal generator further comprising a switch for controllably allowing selected carrier signals to exit said optical signal generator is disclosed in Iida, column 3, lines 46-54. The control units of said optical signal generators being interconnected and each being further adapted to control the respective switch in order to ensure that the carrier signal associated with each target carrier frequency is allowed to exit at most one of the said optical signal generators is disclosed in column 3, lines 46-49, and column 2, lines 62-65 (the switch operates based on the amplitude of the signal, which is controlled by the control unit). A combiner for combing the carrier signals exiting the plurality of optical signal generators is disclosed in column 2, line 65-column 3, line 2.

3. Claims 11, 18-20, and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida in view of Fuse and Seto in further view of Hall.

Regarding claim 11, the offset being substantially zero is disclosed in the instant specification, page 25, lines 3-12, and Hall, in column 5, line 68-column 6, line 2, and

column 8, lines 31-33 (when the beams are the same, the offset is zero). It would have been obvious to one skilled in the art at the time of the invention to have the offset be substantially zero. The motivation would be to transmit at the correct source frequency (Hall, column 8, line 31).

Regarding claim 18, a power combiner associated with each of a least one target carrier frequency, wherein the power combiner associated with a particular target carrier frequency comprises the inputs respectively connected to the first and second detection units associated with the particular target carrier frequency is missing from Iida. However, Hall discloses in column 5, line 67-column 6, line 2, a combiner based on intensity (i.e., power) of signals. It would have been obvious to one skilled in the art at the time of the invention to have a power combiner. The motivation would be to not let stronger signals overwhelm weaker ones.

Regarding claim 19, the power combiner associated with a particular target carrier frequency being adapted to determine the total power of the modulation signal associated with the particular target carrier frequency as measured in different optical channels is missing from Iida. However, Hall discloses in column 5, line 67-column 6, line 2, a combiner based on intensity (i.e., power) of signals. It would have been obvious to one skilled in the art at the time of the invention to have a power combiner that determines total power of the signal. The motivation would be to output a signal at the desired power. The control unit being further adapted to adjust the amplitude of the carrier signal associated with the particular target carrier frequency as a function of the output of the power combiner associated with the particular carrier frequency is

disclosed in Iida, column 2, lines 62-65 (the adjustment is done based on peak value, which is related to power).

Regarding claim 20, each of the first and second detection units associated with a particular target carrier frequency comprising a power monitor adapted to measure a power level of the optical signal present at the filter output port to which said detection unit is connected, each of the first and second detection units associated with a particular target carrier frequency being further adapted to provide the respective measured power level to a respective input of the power combiner to which said detection unit is connected is disclosed in Iida, column 2, lines 51-58 (amplitude is a function of power).

Regarding claim 24, a power combiner associated with each of at least one target carrier frequency, wherein the power combiner associated with a particular target carrier frequency comprises two inputs connected to the outputs of the switch connected to the first and second detection units associated with the particular target carrier frequency is missing from Iida. However, Hall discloses in column 5, line 67-column 6, line 2, a combiner based on intensity (i.e., power) of signals. It would have been obvious to one skilled in the art at the time of the invention to have a power combiner. The motivation would be to not let stronger signals overwhelm weaker ones.

Regarding claim 25, the power combiner associated with a particular target carrier frequency being adapted to determine an estimate of the total power of the modulation signal associated with the particular target carrier frequency as measured in different optical channels is missing from Iida. However, Hall discloses in column 5, line

67-column 6, line 2, a combiner based on intensity (i.e., power) of signals. It would have been obvious to one skilled in the art at the time of the invention to have a power combiner that determines total power of the signal. The motivation would be to output a signal at the desired power. The control unit being further adapted to adjust the amplitude of the carrier signal associated with the particular target carrier frequency as a function of the output of the power combiner associated with the target carrier frequency associated with the particular carrier signal is disclosed in Iida, column 2, lines 62-65 (the adjustment is done based on peak value, which is related to power).

4. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hall in view of Seto in further view of Iida.

Regarding claim 31, modulating the carrier signal in accordance with a modulation signal having a characteristic uniquely associated with the target carrier frequency is missing from Hall. This is disclosed in Iida, column 3, lines 3-4. Determining an indication of a characteristic of the target carrier frequency in said first and second filtered optical signals comprises determining an indication of the extent to which said characteristic of the modulation signal appears in said first and second optical signals is also missing from Hall; this is disclosed in Iida, column 3, lines 20-22. It would have been obvious to one skilled in the art at the time of the invention to use the modulating technique of Iida in the system of Hall. The motivation would be to use a low cost optical transmitter with a simple configuration (Iida, column 2, lines 41-47).

5. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hall in view of Seto in further view of Iida and Fuse.

Regarding claim 32, the first filtered optical signal including the portion of the generated carrier signal contained in a pass band surrounding a channel center frequency that is less than the optical carrier frequency of the generated carrier signal, said second filtered optical signal including the portion of the generated carrier signal contained in a pass band surrounding a channel center frequency that is greater than the optical carrier frequency of the generated carrier signal is missing from Hall. However, Hall does disclose in column 5, lines 66-67, that the two beams have different respective frequencies. Also, Fuse discloses in column 4, lines 40-50, a plurality of filter outputs, some above and some below the center target frequency. It would have been obvious to separate the signal based on frequency. The motivation would be to be able to achieve a larger, higher speed optical communications apparatus (Fuse, column 4, lines 31-33).

6. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hall in view of Fuse and Miyazaki.

Regarding claim 36, receiving a first and second filtered versions of the generated carrier signal, each version including a portion of the generated carrier signal contained in a pass band surrounding a respective channel center frequency is disclosed in Hall, column 5, lines 58-60 and column 9, lines 39-40 (there are two signal portions, both are eventually filtered). Determining an indication of a characteristic of the target carrier frequency in said first and second versions of the generated carrier signal is disclosed in column 5, lines 66-67 (the intensity and frequency of the beam is known). Determining an adjustment value for adjusting the optical carrier frequency of

the generated carrier signal as a function of the difference in the indication of said characteristic of the target carrier frequency in the first and second filtered versions of the generated carrier signal is disclosed in column 5, line 67-column 6, line 2. That the filtering is done optically is missing from Hall. However, Fuse discloses in column 4, lines 40-45, optical filters for filtering an optical signal. It would have been obvious to one skilled in the art at the time of the invention to use the optical filters of Fuse in the system of Hall. The motivation would be to achieve a larger, higher-speed optical communications apparatus (Fuse, column 4, lines 58-59). A computer readable storage medium containing a program element for execution by a computing device to implement a method of stabilizing an optical carrier frequency of a generated carrier signal with respect to a target carrier frequency is missing from Hall. However, Miyazaki discloses in column 2, lines 38-43, using a computer to control a optical stabilization system. It would have been obvious to one skilled in the art at the time of the invention to use a computer readable storage medium to implement the method of Hall. The motivation would be to have a convenient medium for implementing the method.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia L Davis whose telephone number is (571) 272-3117. The examiner can normally be reached on 8:30 to 6, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLD
6/25/2005

CLD
6/29/05

ALPUS H. HSU
PRIMARY EXAMINER